

**WHAT IS CLAIMED IS:**

1. A method of controlling a wavetable synthesizer, the method comprising:  
dynamically determining a present CPU loading estimate associated with a song being played by the wavetable synthesizer;  
5 determining an interpolation degree based on the present CPU loading estimate; and  
adjusting the wavetable synthesizer to utilize the interpolation degree when playing the song.
- 10 2. The method of claim 1, wherein determining the interpolation degree based on the present CPU load estimate comprises:  
comparing the present CPU loading estimate with a predefined permissible maximum CPU load limit and determining the interpolation degree based on said comparison.
- 15 3. The method of claim 2, wherein determining the interpolation degree based on said comparison comprises:  
determining the interpolation degree, based on said comparison, so as to provide a best quality of song synthesis without exceeding the predefined  
20 permissible maximum CPU load limit.
4. The method of claim 2, wherein determining the interpolation degree based on said comparison comprises:  
halting song synthesis, based on said comparison, in order to avoid song  
25 synthesis at a quality that is below a predetermined threshold.
5. The method of claim 1, comprising:  
adjusting the interpolation degree to a higher value in response to detecting that the present CPU loading estimate has decreased.

6. The method of claim 1, comprising:  
adjusting the interpolation degree to a lower value in response to detecting  
that the present CPU loading estimate has increased.

5

7. The method of claim 1, wherein determining the interpolation degree based  
on the present CPU load estimate comprises:

comparing the present CPU loading estimate with one or more predefined  
CPU load levels, and determining the interpolation degree based on said one or  
10 more comparisons, wherein each of the one or more predefined CPU load levels  
corresponds to a corresponding one of a set of one or more interpolation degrees.

8. The method of claim 1, wherein dynamically determining the present CPU  
loading estimate associated with the song being played by the wavetable  
15 synthesizer comprises:

while playing the song, detecting that a new voice has been set active;  
determining an additional CPU load value that corresponds to the new  
voice; and

adding the additional CPU load value to an accumulated CPU loading  
20 estimate that represents the present CPU loading estimate.

9. The method of claim 8, wherein determining the additional CPU load value  
that corresponds to the new voice comprises:

using an identity of the new voice to access and retrieve the additional CPU  
25 load value from a memory.

10. The method of claim 1, wherein dynamically determining the present CPU  
loading estimate associated with the song being played by the wavetable  
synthesizer comprises:

while playing the song, detecting that an existing voice has been newly deactivated;

determining a CPU load value that corresponds to the newly deactivated voice; and

5        subtracting the corresponding CPU load value from an accumulated CPU loading estimate that represents the present CPU loading estimate.

11.    An apparatus for controlling a wavetable synthesizer, the apparatus comprising:

10        logic that dynamically determines a present CPU loading estimate associated with a song being played by the wavetable synthesizer;

logic that determines an interpolation degree based on the present CPU loading estimate; and

15        logic that adjusts the wavetable synthesizer to utilize the interpolation degree when playing the song.

12.    The apparatus of claim 11, wherein the logic that determines the interpolation degree based on the present CPU load estimate comprises:

20        logic that compares the present CPU loading estimate with a predefined permissible maximum CPU load limit and determines the interpolation degree based on said comparison.

13.    The apparatus of claim 12, wherein the logic that determines the interpolation degree based on said comparison comprises:

25        logic that determines the interpolation degree, based on said comparison, so as to provide a best quality of song synthesis without exceeding the predefined permissible maximum CPU load limit.

14.    The apparatus of claim 12, wherein the logic that determines the interpolation degree based on said comparison comprises:

30

logic that halts song synthesis, based on said comparison, in order to avoid song synthesis at a quality that is below a predetermined threshold.

15. The apparatus of claim 11, comprising:

5 logic that adjusts the interpolation degree to a higher value in response to detecting that the present CPU loading estimate has decreased.

16. The apparatus of claim 11, comprising:

10 logic that adjusts the interpolation degree to a lower value in response to detecting that the present CPU loading estimate has increased.

17. The apparatus of claim 11, wherein the logic that determines the interpolation degree based on the present CPU load estimate comprises:

15 logic that compares the present CPU loading estimate with one or more predefined CPU load levels, and determines the interpolation degree based on said one or more comparisons, wherein each of the one or more predefined CPU load levels corresponds to a corresponding one of a set of one or more interpolation degrees.

20 18. The apparatus of claim 11, wherein the logic that dynamically determines the present CPU loading estimate associated with the song being played by the wavetable synthesizer comprises:

logic that detects that a new voice has been set active while playing the song;

25 logic that determines an additional CPU load value that corresponds to the new voice; and

logic that adds the additional CPU load value to an accumulated CPU loading estimate that represents the present CPU loading estimate.

19. The apparatus of claim 18, wherein the logic that determines the additional CPU load value that corresponds to the new voice comprises:

logic that uses an identity of the new voice to access and retrieve the additional CPU load value from a memory.

5

20. The apparatus of claim 11, wherein the logic that dynamically determines the present CPU loading estimate associated with the song being played by the wavetable synthesizer comprises:

logic that detects that an existing voice has been newly deactivated while playing the song;

logic that determines a CPU load value that corresponds to the newly deactivated voice; and

logic that subtracts the corresponding CPU load value from an accumulated CPU loading estimate that represents the present CPU loading estimate.

15

21. A computer-readable storage medium having stored therein one or more instructions for causing a processor to control a wavetable synthesizer, the instructions causing the processor to perform:

dynamically determining a present CPU loading estimate associated with a song being played by the wavetable synthesizer;

determining an interpolation degree based on the present CPU loading estimate; and

adjusting the wavetable synthesizer to utilize the interpolation degree when playing the song.

25

22. The computer-readable storage medium of claim 21, wherein determining the interpolation degree based on the present CPU load estimate comprises:

comparing the present CPU loading estimate with a predefined permissible maximum CPU load limit and determining the interpolation degree based on said comparison.

30

23. The computer-readable storage medium of claim 22, wherein determining the interpolation degree based on said comparison comprises:

5 determining the interpolation degree, based on said comparison, so as to provide a best quality of song synthesis without exceeding the predefined permissible maximum CPU load limit.

24. The computer-readable storage medium of claim 22, wherein determining the interpolation degree based on said comparison comprises:

10 halting song synthesis, based on said comparison, in order to avoid song synthesis at a quality that is below a predetermined threshold.

25. The computer-readable storage medium of claim 21, wherein the instructions cause the processor to perform:

15 adjusting the interpolation degree to a higher value in response to detecting that the present CPU loading estimate has decreased.

26. The computer-readable storage medium of claim 21, wherein the instructions cause the processor to perform:

20 adjusting the interpolation degree to a lower value in response to detecting that the present CPU loading estimate has increased.

27. The computer-readable storage medium of claim 21, wherein determining the interpolation degree based on the present CPU load estimate comprises:

25 comparing the present CPU loading estimate with one or more predefined CPU load levels, and determining the interpolation degree based on said one or more comparisons, wherein each of the one or more predefined CPU load levels corresponds to a corresponding one of a set of one or more interpolation degrees.

28. The computer-readable storage medium of claim 21, wherein dynamically determining the present CPU loading estimate associated with the song being played by the wavetable synthesizer comprises:

while playing the song, detecting that a new voice has been set active;

5 determining an additional CPU load value that corresponds to the new voice; and

adding the additional CPU load value to an accumulated CPU loading estimate that represents the present CPU loading estimate.

10 29. The computer-readable storage medium of claim 28, wherein determining the additional CPU load value that corresponds to the new voice comprises:

using an identity of the new voice to access and retrieve the additional CPU load value from a memory.

15 30. The computer-readable storage medium of claim 21, wherein dynamically determining the present CPU loading estimate associated with the song being played by the wavetable synthesizer comprises:

while playing the song, detecting that an existing voice has been newly deactivated;

20 determining a CPU load value that corresponds to the newly deactivated voice; and

subtracting the corresponding CPU load value from an accumulated CPU loading estimate that represents the present CPU loading estimate.

25